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UTILITY APPLICATION FOR UNITED STATES PATENT
FOR
GOLF BAG AND METHOD FOR MAKING BOTTOM CASE OF THE SAME

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GOLF BAG AND METHOD FOR MAKING BOTTOM CASE OF THE SAME

BACKGROUND OF THE INVENTION

a) Field of the Invention

The present invention relates to a golf bag, and more particularly, to a bottom/upper case of a golf bag that is designed having a softness for preventing golf clubs from being damaged by absorbing impact in the course of the insertion or withdrawal of the clubs. The present invention further relates to a method for making a bottom/upper case of a golf bag that can form letters or a logo on the bottom/upper case.

b) Description of Related Art

Generally, a golf bag is used for carrying or storing a plurality of golf clubs, and is made in a variety of designs.

Such a golf bag comprises a body portion in which the golf clubs are stored, a cover portion openably attached on an upper portion of the body portion, a bottom case attached on a lower portion of the body portion to define a bottom of the golf bag, and an upper case attached on a top of the body portion to support the golf bag.

Accordingly, the golf clubs are inserted into the body portion through the opened cover portion.

However, such a conventional golf bag has several of problems, as follows:

1. When the golf clubs are inserted into the body portion, the lower ends of the clubs collide with the top of the bottom case, generating noise.

2. The clubs may be damaged by impact generated when the clubs collide with the bottom case.

3. Since the bottom case is made through an injection molding process, the golf bag is heavy to carry for a long time.

4. It is difficult to form letters or other graphics on the bottom case.

The above problems are identically applied to the upper case.

SUMMARY OF THE INVENTION

Accordingly, the present invention is directed to a golf bag that substantially obviates one or more problems due to limitations and disadvantages of the related art

It is an objective of the present invention to provide bottom and upper cases for a golf bag that are made through a foaming process using a synthetic resin so that the cases can have softness to prevent the clubs from being damaged, by absorbing impact.

It is another objective of the present invention to provide a bottom case that is designed such that letters or other graphics can be easily formed thereon.

To achieve the above objectives, the present invention provides a golf bag comprising a body portion for receiving golf clubs; an upper case for supporting an upper end of the body portion; and a bottom case for supporting a lower end of the body portion and defining a bottom of the body portion,

wherein the bottom case is formed through a foam forming process.

The bottom case is formed of a material composed of a resin, plasticizer, crosslink agent, and blowing agent. The resin is selected from the group consisting of Ehtylene Vinyl Acetate (EVA), Poly Ehtylene (PE), Rubber, Poly Propylene (PP), PVC, Polyurethane, Polystyrene Foam, and Foam rubber, and the blowing agent is formed of Azodicarbonamide-based material.

Preferably, the bottom case is provided with a hole representing letters or graphics, and the golf bag further comprises a bottom plate having a different color from the bottom case and a projection having an identical shape to the hole formed on the bottom, the bottom plate is mounted on the bottom case such that the projection is fitted in the hole to be exposed to an external portion. The bottom case is provided with a hook groove and the bottom plate is provided with a hook projection that is engaged with the hook groove when the bottom plate is mounted on the bottom case.

The golf bag may further comprise a bottom plate mounted on the bottom case, the bottom plate being provided at a bottom thereof with predetermined graphics such as letters or a logo.

The graphics are formed by an engraving or embossing process.

According to another aspect, the present invention provides a method for making a bottom case for a golf bag, the method comprising the steps of preparing a material containing a blowing agent; pre-forming the bottom case using the material through an injection molding process; removing the pre-formed bottom case from the mold; and letting the pre-formed bottom case be expanded by the blowing agent, thereby completing the bottom case having

softness.

According to still another aspect, the present invention provides a method comprising the steps of preparing a material containing a blowing agent; pre-forming the bottom case using the material through an injection molding process; removing the pre-formed bottom case out of a mold; and transferring the pre-formed bottom case in a chamber supplied with a worm air so that the pre-formed bottom case can be expanded by the blowing agent, thereby completing the bottom case having a softness.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

FIG. 1 is a perspective view of a golf bag where bottom and upper cases according to a first embodiment of the present invention are employed;

FIG. 2 is a view illustrating an inner structure of the golf bag depicted in FIG. 1;

FIG. 3 is a plane view illustrating the bottom case depicted in FIG. 3;

FIG. 4 is a bottom view of the bottom case depicted in FIG. 3;

FIG. 5 is a sectional view taken along line A-A of FIG. 3;

FIG. 6 is a schematic view illustrating a process for making a bottom case of a golf bag according to an embodiment of the present invention;

FIG. 7 is a flowchart illustrating the process depicted in FIG. 6;

FIG. 8 is a schematic view illustrating a process for making a bottom case of a golf bag according to another embodiment of the present invention;

FIG. 9 is a bottom view illustrating a bottom case on which letters and a logo are formed according to an embodiment of the present invention;

FIGS. 10a and 10b are side views illustrating a process for forming letters and a logo on the golf bag bottom case depicted in FIG. 9;

FIG. 11 is a bottom view illustrating a bottom case on which letters and a logo are formed according to another embodiment of the present invention;

FIGS. 12a and 12b are side views illustrating a process for forming letters and a logo on the golf bag bottom case depicted in FIG. 11; and

FIGS. 13 is a side view illustrating a process for forming letters and a logo on a golf bag bottom case according to another embodiment of the present invention.

PREFERRED EMBODIMENTS OF THE PRESENT INVENTION

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

As shown in FIGS. 1 to 5, the inventive golf bag comprises a body portion 3 for storing golf clubs 1, a cover 5 attached on a top of the body portion 3, a bottom case 7 attached on a bottom of the body portion 3 to support grips of the clubs 1 stored in the body portion 3, and an upper case for supporting an upper portion of the body portion 3. A shoulder strap 9 is attached on a side of the body portion 3 for the purpose of carry the golf bag.

In the above-described golf bag, the body portion defines a predetermined space in which a plurality of golf clubs 1 are stored. In addition, the cover 5 is designed to selectively open and close a top opening of the body portion 3.

That is, the cover 5 can be selectively opened and closed when a user inserts or withdraws the golf clubs 1.

However, the present invention is not limited to a golf bag having the cover 5. That is, the cover 5 may be omitted in the present invention.

The bottom case 7 can be designed in a variety of shapes such as a rectangular shape, a circular -shape, and the like. The bottom case 7 is integrally attached on a bottom of the body portion 3 to function as a support for the golf bag. The attachment of the bottom case 7 and the body portion 3 can be realized by a fitting manner. The outer surface of the bottom case 7 is covered with an outer cover through needlework.

In the present invention, an attachment by sewing is exemplified. FIG. 2 shows the bottom case 7 attached by a sewing line 15.

The bottom case 7 is preferably formed in a circular shape and is tapered downward. That is, a diameter of the top of the bottom case 7 is less than that of the bottom. A plurality of supporting members 21 are integrally formed on a circumference of the bottom case 7 to enhance the supporting force and stability.

Accordingly, such a bottom case 7 effectively supports the golf bag.

However, the shape of the bottom case 7 is not limited to the above, and is applicable to conventional golf bags.

The bottom case 7 and/or the upper case 2 are manufactured in a method illustrated in FIGS. 6 and 7. Being made by the method, the bottom case 17 is designed to absorb an outer impact generated when a lower end 19 of the golf club 1 contacts thereon while minimizing the contact noise.

The impact absorption of the bottom case 7 prevents the golf clubs from being damaged or worn.

Describing the method in more detail, the method comprises a material-preparing step S100, an injection-molding step S120 for forming the bottom case 7 and/or the upper case 2 by supplying the prepared material to an injection machine, a foam-molding step S130 for foaming the molded bottom case 7 and/or the upper case 2 after a predetermined time has lapsed, and a cooling/drying/inspecting step S140 for cooling, drying, and inspecting the foamed bottom case 7 and/or the upper case 2. In the following description, only the bottom case 7 will be described, as the bottom case 7 is constructed identically to the upper case 2.

In the material-preparing step S100, a resin, a plasticizer, a crosslink, and a blowing agent are stored in a material-storing tank 22.

At this point, the resin is preferably selected from the group consisting of ethylene vinyl acetate (EVA), polyethylene (PE), rubber, polypropylene (PP), PVC, polyurethane, polystyrene foam, and foam rubber.

In addition, an azodicarbonamide-based material is preferably used for the blowing agent. The azodicarbonamide-based material is a blowing agent having the molecular formula $C_2H_4N_4O_2$, a molecular weight of 116.08, and a specific gravity of 1.65 (25_).

Accordingly, such a resin, plasticizer, a blowing agent are fed into the material storing tank 22 and are uniformly mixed by agitation.

After the materials are mixed, the bottom case 7 having a predetermined shape is formed through an injection molding process S120.

Describing in more detail, the injection machine 23 is first cleaned, and the mixed material is fed into a hopper 24 of the injection machine 23. The fed material is injected into a mold 26 through a nozzle portion 25 of the injection machine 23.

At this point, the cavity 27 of the mold 26 is designed corresponding to the shape of the bottom case 7. Accordingly, the material fed into the mold 26 is formed in the bottom case 7 under a predetermined temperature and pressure.

At this point, as there is a blowing agent in the mixed material, a foam process is undertaken in the cavity 27 of the mold 26 under a predetermined temperature condition.

Accordingly, although it is intended that the bottom case 7 will be expanded to a predetermined size by the foam process, the expansion of the bottom case 7 is suppressed by the mold 26 that is formed of a steel body.

For expansion of the bottom case 7, when the injection molding process is completed and the mold 26 is separated, the injection-molded bottom case 7 is expanded to a predetermined size in the air, and is then cooled, thereby completing the forming process.

Accordingly, by the foaming process, the bottom case 7 has an appropriate flexibility and elasticity. Therefore, the bottom case 7 prevents

noise by absorbing impacts of the golf clubs 1.

Furthermore, since the bottom case 7 is formed through the foam process, a thickness t_1 of the upper sidewall of the bottom case 7 can be formed greater than 4 mm, and a thickness T_2 of the lower sidewall of the bottom case 7 is designed to be more than the thickness t_1 . That is, since there is a limitation in an increase in the thickness in the conventional injection molding process, the foam process is applied in the present invention to increase the thickness.

In the present invention, a stabilizing step for stabilizing the foamed bottom case at a predetermined temperature can be selectively performed. That is, by storing the foamed bottom case at a space maintaining a normal temperature or above the normal temperature, the material of the bottom case can be uniformly maintained.

Such a stabilizing step can be performed once or twice.

The bottom case 7 manufactured through the foam process S130 undergoes a size inspection, an outer appearance inspection, and an endurance test, thereby becoming a final product.

The bottom case can be formed through another method, as shown in FIG. 8.

As shown in the drawing, in this method, the foam process is preformed using an additional foam chamber.

That is, as in the aforementioned embodiment, the resin, plasticizer, and blowing agent are input into the material storing tank 30 and then agitated to be uniformly mixed.

The mixed material is fed into the injection molding machine 34 through the hopper 36, and is then injected into the cavity of the mold 44 having the shape of the bottom case 7, thereby being formed in the bottom case 7 in the mold 44.

After the molding process is completed, the molded bottom case 7 is removed from the mold 44, and is then transferred to a chamber 48 to be heated for a predetermined time.

The chamber 48 is provided at an upper side with a ventilator 50 for supplying warm air. The bottom case 7 is transferred into the chamber 48 by a conveyer 52.

The bottom case 7, transferred into the chamber 48, is heated to a predetermined temperature by the supplied warm air. At this point, the temperature of the chamber 48 is preferably maintained within a range of about 100-250_.

Accordingly, the bottom case 7 is heated within the above temperature range to undergo the foaming process (S130).

As a result, the bottom case 7 is designed having a soft property through the foaming process, thereby facilitating absorption of outer impacts applied by the golf clubs and preventing the clubs 1 from being damaged.

In the above embodiments, although only the bottom case 7 is described as being made through the foaming process, the upper case 2 can also be made through the foaming process.

Additionally, as shown in FIGS. 9 and 10, the bottom case made by the above-described foaming process can be designed having letters or a logo, i.e.

letters and/or a logo can be formed on a bottom of the bottom case.

That is, for example, a hole 68 formed in the shape of predetermined letters representing "MS" is formed on the bottom of the bottom case 7. A bottom plate 64 having a different color from the bottom case 7 is separately made. The bottom plate 64 is provided at a bottom thereof with a protrusion 62 having an identical shape to that of the hole formed on the bottom of the bottom case 7.

Furthermore, the bottom plate 64 is seated on a seating portion 66 of the bottom case 7 such that the protrusion 62 is inserted into the hole 68. Accordingly, the protrusion is exposed to an external side thereof. As the color of the protrusion is different from that of the bottom plate 64, the letter "MS" can be distinguished.

At this point, it is preferable that the bottom plate 64 is fixed on the seating portion 66 of the bottom case 7 by an adhesive or a forced fixing manner.

Alternatively, a groove representing the letters is directly formed on the bottom of the bottom case 7, and body pieces having a different color from that of the bottom case 7 are attached in the groove to represent the letters.

FIGS. 11 to 12b show a process for forming the letters and/or logo according to another embodiment of the present invention.

As shown in the drawing, a donut-shaped groove 72 is formed on a bottom of the bottom case 7, and a bottom plate 74 having an identical shape to the groove 72 is separately prepared and attached in the groove 72. At this point, the bottom plate 74 is already provided at a bottom thereof with letters,

for example "MS."

Accordingly, the letters are represented by attaching or forcedly fitting the bottom plate 74 in the groove 72 formed on the bottom case 7.

Furthermore, in the case where the letters are formed on the bottom of the bottom plate 74 as described above, the letters can be formed through an engraving or embossing process.

That is, a groove representing the letters can be engraved on the bottom of the bottom plate 74, and a projection representing the letters may be embossed on the bottom 76 of the bottom plate 74.

As described above, the bottom plate 74 provided with the letters is integrally attached or fitted on the groove 72 of the bottom case 7.

In addition, as shown in FIG. 13, the bottom plate 84 may be fixed on the bottom of the bottom case 7 in a hook-coupling manner.

That is, the bottom case 7 is provided at the bottom 82 thereof with hook grooves 83, and the bottom plate 84 having the letters is provided at the top with hook projections 85 hooked on the hook grooves 83.

Therefore, when depressing the bottom plate 84 toward the bottom 82 of the bottom case 7, the hook projections 85 are hooked on the hook grooves 83, whereby the bottom plate 84 is integrally mounted on the bottom 82 of the bottom plate 84.

As a result, the mounting of the bottom plate 84 on the bottom case 7 provides the same effect as that when the letters are directed from the bottom of the bottom case. Also, the bottom case 7 can be manufactured by rigid materials.

Therefore, as described above, in the present invention, since the bottom and upper cases for a golf bag are made through a foaming process using a synthetic resin, the cases can have the softness to prevent the clubs from being damaged, by absorbing impact.

In addition, since the bottom case is designed such that letters or other graphics can be easily formed thereon, the sense of beauty of the golf bag can be improved.

It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.